

TMDL Project Closeout Report

MIDDLE FORK HOLSTON RIVER WATERSHED

Virginia Nonpoint Source MANAGEMENT PROGRAM

Project Location and Background

The Middle Fork Holston River watershed is located in the Tennessee River Basin in Smyth, Washington, and Wythe Counties, Virginia. The watershed is approximately 52,169 acres in size and land use is predominantly pasture and forested. The Middle Fork Holston River was listed as impaired on Virginia's 1998 Section 303(d) Total Maximum Daily Load (TMDL) Priority List and Report due to violations of the State's Water Quality Standards for fecal coliform bacteria and the General Standard (benthic). The Middle Fork Holston River and Wolf Creek TMDL was completed in October 2009. A stressor analysis performed during TMDL development identified sediment as the primary stressor causing the aquatic life use impairment in the river. A TMDL implementation plan was completed in June 2013, and a 319(h)-funded implementation project was initiated in April 2014 with New River Highlands RC&D. The project was implemented in Smyth County (including three of the five watersheds), while other state-funded

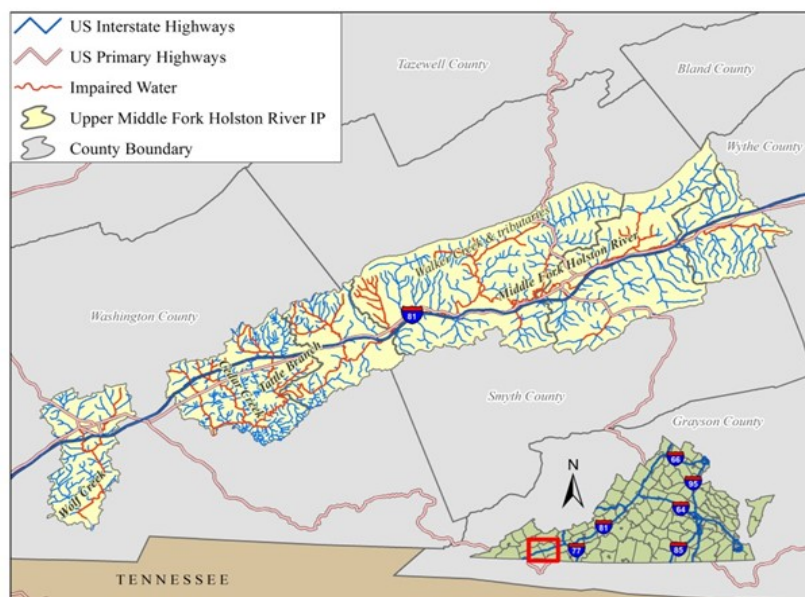


Table 1: Middle Fork Holston River BMP Summary: April 2014 – June 2018

Control Measure	Units	Goal	Installed	%
Agricultural				
Stream Exclusion Fencing	F	1,510,080	70,199	5
Stream Exclusion Fencing	S	452	37	8
Riparian Buffers	A	N/A	101	N/A
Improved Pasture Mgmt	A	28,596	3,390	12
Reforestation of Erodible Pasture & Cropland	A	358	1	<1
Waste Storage	S	3	1	33
Permanent Vegetative Cover on Cropland	A	7	85.2	1,217
Streambank Stabilization	F	1,500	0	0
Residential Septic				
Septic Tank Pump-out	S	2,460	63	3
Connection to Public Sewer	S	6	3	50
Septic System Repair	S	422	2	<1
Septic System Installation	S	170	4	2
Alternative Waste Treatment System	S	77	0	0
Urban Pet waste				
Pet Waste Stations	S	125	16	13

A = Acres, F = Linear Feet, S = System; **Note:** BMP counts only include 319-funded and state VACS. NRCS EQIP funded practices are not included.

Implementation Highlights

The Middle Fork Holston River watershed Implementation Project was originally administered by the New River Highlands RC&D. Evergreen Soil and Water Conservation District (ESWCD) took over the remaining project activities in May 2016, extended the timeline, and expanded the project area to include other areas in Smyth County where potential participants had shown interest. ESWCD's grant award was directed at residential septic, agricultural, and pet waste BMP implementation in the three watersheds in Smyth County and ended June 30, 2017. Table 1 to the right shows BMPs implemented over the entire project period including BMPs installed by the Virginia Agriculture Cost Share (VACS) Program across the entire Middle Fork Holston River watershed.

The agricultural program was successful at installing exclusion fencing, creating 101 acres of riparian buffers, and improving pasture management for 3,390 acres. (continued on page 2)

Implementation Highlights— Continued

The residential septic program exceeded expectations and completed 63 septic tank pump-outs, three connections to public sewer, two repairs, and four installations. The pet waste educational program installed 16 pet waste stations in a partnership with the Town of Marion and Town of Chilhowie.

Period	Pathogens (Coliform) (CFU)
July 2014-June 2018	6.49E+15

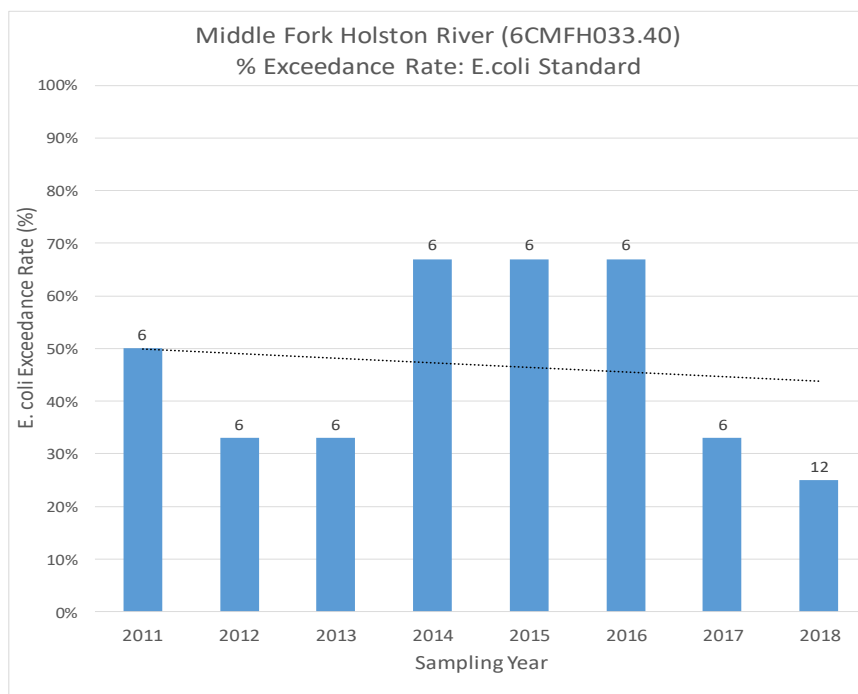
Table 2: Pollutant Reductions for Middle Fork Holston River Watershed

Project Funding

The total amount of cost-share provided for landowners during the project period totaled \$844,997 from both state and federal funding. State funding included cost-share through the Agricultural Cost-Share Program (\$730,142). Federal 319 funds provided \$246,399.68 in cost-share and an estimate of \$100,000 in technical assistance funds for the ESWCD staff to administer agricultural and residential programs in the Upper Middle Fork Holston River project area. The landowner contributions to implement agricultural and residential BMPs totaled \$333,352. Total project funding was \$1,410,074.

Water Quality Monitoring Results

Water quality data collected by DEQ for the period of 2011 through 2018 were analyzed to determine *E. coli* violation rates in the project area for the water quality standard of 235 cfu/100 mL. The bar graph to the right shows the percent exceedance rate for samples collected annually at monitoring station 6CMFH033.40 located at the Rt. 645 bridge near Seven Mile Ford. The number of samples collected each year is shown above each bar. The linear regression fitted to the data suggests a slight water quality improvement. The benthic station on the Middle Fork Holston was visited in 2018, but the results had not been fully analyzed at the time of this report.



Graph 1: *E. coli* data for Middle Fork Holston River (Station 6CMRH033.40), 2011-2018

Partnerships and Outreach

Agricultural projects in the watersheds were implemented through partnerships between ESWCD, Natural Resource Conservation Service (NRCS), Farm Service Agency (FSA), and the Virginia Department of Conservation's Virginia Agricultural Cost Share (VACS) Program. Because of these partnerships, ESWCD was able to extend agricultural funding to more participants in Smyth County. The residential projects were implemented through partnerships with the Town of Marion, the Town of Chilhowie, and Smyth County Board of Supervisors. Both towns provided labor to install the pet waste stations provided by the grant. Smyth County Board of Supervisors was a new partner for ESWCD, and it opened a new opportunity to leverage county funds for future projects. With their partnership, three residents with failing septic systems were able to connect to the sewer line and remove the overflow from their neighbor's backyard.

ESWCD incorporated their work into lesson plans and field days with local schools. They also reached adults through newspaper articles/ads, a Lawn and Garden Show, and a local Farmers Market to help recruit interest in the project and educate them on the impacts of pet waste on water quality.



Photos: (Left) Livestock exclusion fencing; (Right) Septic system installation. Courtesy of ESWCD.

Closeout Analysis

The Middle Fork Holston River Implementation Project was carried out over a 13-month period from May 2016 until June 2017. ESWCD was successful in meeting implementation goals despite the setback that occurred when New River Highlands RC&D managed the project (2014-2016) and was not able to complete BMPs. Project highlights include the following:

- ⇒ Partnerships were key to accomplishing BMP implementation. The agricultural projects leveraged VACS, FSA, and NCRC support. Residential projects built a new partnership between the Smyth County Board of Supervisors and ESWCD, and pet waste projects worked closely with the towns of Marion and Chilhowie to install pet waste stations.
- ⇒ The implementation project enabled homeowners who otherwise would not have been able to afford to fix their failing septic systems to replace their septic systems or connect to sewer lines. Also, this project enabled the county to include some homes that otherwise would have not been fixed because of limited County budget. This was an opportunity to build a new working relationship for future projects between ESWCD and Smyth County.
- ⇒ The residential septic program took about seven months to gain interest. Several ads and articles in the local paper seemed to be the most successful at promoting the project. Once interest increased, demand was high for septic tank pump-outs, and news of the project traveled via word-of-mouth.
- ⇒ When ESWCD assumed management of the implementation project, the eligible area in Smyth County was expanded. This immediately increased landowner interest and participation in the project.
- ⇒ The financial hardship in Smyth county made it difficult to implement some much-needed septic repairs and replacements. This project was implemented before the fiscally-stressed cost-share rates were established.
- ⇒ The educational outreach to local schools and adults raised awareness of how failing septic systems, pet waste, and/or livestock in streams can impact local water quality.
- ⇒ At the end of this grant, ESWCD reported that they had to turn down interested participants due to lack of funding. Due to their outreach and word-of-mouth from participants, interest picked up toward the end of the project. ESWCD spent all project funding and could have continued providing cost-share for both residential and agricultural BMPs if additional funds were available.
- ⇒ The biggest challenge of the implementation project was the New River Highlands RC&D management of the project's first two years. There was a lack of communication among partners, which impeded progress tracking and reporting. Also, in the original scope of work, there were unrealistic BMP implementation goals and inadequate funding accounted for in the budget. ESWCD took on the project in stride and were able to accomplish the overall objectives of the project.

For More Information Please Contact:

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